

D. Steadman

#1118
RECEIVED Page 1 of 7
022-01

JUN 21 2001

TECH CENTER 1600/2900 1652

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/508,418

DATE: 05/21/2001
TIME: 09:50:59

Input Set : A:\Q58140.txt
Output Set: N:\CRF3\05212001\I508418.raw

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3 <110> APPLICANT: Nihon Nohyaku Co., Ltd.
5 <120> TITLE OF INVENTION: NOVEL PROTOPORPHYRINOGEN OXIDASE TOLERANT TO PHOTBLEACHING HERBICIDE
7 <130> FILE REFERENCE: Q58140
9 <140> CURRENT APPLICATION NUMBER: 09/508,418
C--> 10 <141> CURRENT FILING DATE: 2000-06-08
12 <150> PRIOR APPLICATION NUMBER: JP 9-265084
13 <151> PRIOR FILING DATE: 1997-09-11
15 <160> NUMBER OF SEQ ID NOS: 11
17 <170> SOFTWARE: PatentIn version 3.0
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 1874
21 <212> TYPE: DNA
22 <213> ORGANISM: Nicotiana tabacum
24 <220> FEATURE:
25 <221> NAME/KEY: exon
26 <222> LOCATION: (26)..(1672)
28 <220> FEATURE:
29 <221> NAME/KEY: misc_feature
30 <223> OTHER INFORMATION: Strain name: Xanthi NC
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36                               1                               5
38 cct aat att ttc act cac cag tcg tcg tca tcg cca ttg gca ttc tta           100
39 Pro Asn Ile Phe Thr His Gln Ser Ser Ser Ser Pro Leu Ala Phe Leu
40 10                               15                               20                               25
42 aac cgt acg agt ttc atc cct ttc tct tca atc tcc aag cgc aat agt           148
43 Asn Arg Thr Ser Phe Ile Pro Phe Ser Ser Ile Ser Lys Arg Asn Ser
44                               30                               35                               40
46 gtc aat tgc aat ggc tgg aga aca cga tgc tcc gtt gcc aaa gat tac           196
47 Val Asn Cys Asn Gly Trp Arg Thr Arg Cys Ser Val Ala Lys Asp Tyr
48                               45                               50                               55
50 aca gtt cct tcc tca gcg gtc gac ggc gga ccc gcc gcg gag ctg gac           244
51 Thr Val Pro Ser Ser Ala Val Asp Gly Gly Pro Ala Ala Glu Leu Asp
52                               60                               65                               70
54 tgt gtt ata gtt gga gca gga att agt ggc ctc tgc att gcg cag gtg           292
55 Cys Val Ile Val Gly Ala Gly Ile Ser Gly Leu Cys Ile Ala Gln Val
56                               75                               80                               85
58 atg tcc gct aat tac ccc aat ttg atg gta acc gag gcg aga gat cgt           340
59 Met Ser Ala Asn Tyr Pro Asn Leu Met Val Thr Glu Ala Arg Asp Arg
60 90                               95                               100                               105
62 gcc ggt ggc aac ata acg act gtg gaa aga gac ggc tat ttg tgg gaa           388
63 Ala Gly Gly Asn Ile Thr Thr Val Glu Arg Asp Gly Tyr Leu Trp Glu
64                               110                               115                               120
66 gaa ggt ccc aac agt ttc cag ccg tcc gat cct atg ttg act atg gca           436
67 Glu Gly Pro Asn Ser Phe Gln Pro Ser Asp Pro Met Leu Thr Met Ala
68                               125                               130                               135

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135 Val Asp Gly Glu Leu Lys Gly Phe Gly Gln Leu His Pro Arg Thr Gln
136      395                400                405
138 gga gtg gaa aca cta gga acg ata tat agt tca tca ctc ttc cct aac      1300
139 Gly Val Glu Thr Leu Gly Thr Ile Tyr Ser Ser Ser Leu Phe Pro Asn
140 410                415                420                425
142 cgt gcc cca aaa ggt cgg gtg cta ctc ttg aac tac att gga gga gca      1348
143 Arg Ala Pro Lys Gly Arg Val Leu Leu Leu Asn Tyr Ile Gly Gly Ala
144                430                435                440
146 aaa aat cct gaa att ttg tct aag acg gag agc caa ctt gtg gaa gta      1396
147 Lys Asn Pro Glu Ile Leu Ser Lys Thr Glu Ser Gln Leu Val Glu Val
148                445                450                455
150 gtt gat cgt gac ctc aga aaa atg ctt ata aaa ccc aaa gct caa gat      1444
151 Val Asp Arg Asp Leu Arg Lys Met Leu Ile Lys Pro Lys Ala Gln Asp
152                460                465                470
154 cct ctt gtt gtg ggt gtg cga gta tgg cca caa gct atc cca cag ttt      1492
155 Pro Leu Val Val Gly Val Arg Val Trp Pro Gln Ala Ile Pro Gln Phe
156 475                480                485
158 ttg gtt ggt cat ctg gat acg cta agt act gca aaa gct gct atg aat      1540
159 Leu Val Gly His Leu Asp Thr Leu Ser Thr Ala Lys Ala Ala Met Asn
160 490                495                500                505
162 gat aat ggg ctt gaa ggg ctg ttt ctt ggg ggt aat tat gtg tca ggt      1588
163 Asp Asn Gly Leu Glu Gly Leu Phe Leu Gly Gly Asn Tyr Val Ser Gly
164                510                515                520
166 gta gca ttg ggg agg tgt gtt gaa ggt gct tat gaa gtt gca tcc gag      1636
167 Val Ala Leu Gly Arg Cys Val Glu Gly Ala Tyr Glu Val Ala Ser Glu
168                525                530                535
170 gta aca gga ttt ctg tct cgg tat gca tac aaa tga aacctgtgtt      1682
171 Val Thr Gly Phe Leu Ser Arg Tyr Ala Tyr Lys
172 540                545
174 ggggtagtc caaaccttgt tagtagtaog atcatgcctt gggaaaattg gcatgtgcct      1742
176 aaaagttttg ctcattagag ttattttagc cttggtaaat gatttgact tgatatcagt      1802
178 cgttttcttt gagataaaat gttcctgttc aggaaatata atgtatatca attttaaaca      1862
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183 <210> SEQ ID NO: 2
184 <211> LENGTH: 548
185 <212> TYPE: PRT
186 <213> ORGANISM: Nicotiana tabacum
188 <220> FEATURE:
189 <221> NAME/KEY: misc_feature
190 <223> OTHER INFORMATION: Strain name: SR1
193 <400> SEQUENCE: 2
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196 1      5      10      15
198 Ser Ser Ser Ser Pro Leu Ala Phe Leu Asn Arg Thr Ser Phe Ile Pro
199                20                25                30
201 Phe Ser Ser Ile Ser Lys Arg Asn Ser Val Asn Cys Asn Gly Trp Arg
202                35                40                45
204 Thr Arg Cys Ser Val Ala Lys Asp Tyr Thr Val Pro Ser Ser Ala Val
205 50                55                60

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207 Asp Gly Gly Pro Ala Ala Glu Leu Asp Cys Val Ile Val Gly Ala Gly
208 65 70 75 80
210 Ile Ser Gly Leu Cys Ile Ala Gln Val Met Ser Ala Asn Tyr Pro Asn
211 85 90 95
213 Leu Met Val Thr Glu Ala Arg Asp Arg Ala Gly Gly Asn Ile Thr Thr
214 100 105 110
216 Val Glu Arg Asp Gly Tyr Leu Trp Glu Glu Gly Pro Asn Ser Phe Gln
217 115 120 125
219 Pro Ser Asp Pro Met Leu Thr Met Ala Val Asp Cys Gly Leu Lys Asp
220 130 135 140
222 Asp Leu Val Leu Gly Asp Pro Asn Ala Pro Arg Phe Val Leu Trp Lys
223 145 150 155 160
225 Gly Lys Leu Arg Pro Val Pro Ser Lys Leu Thr Asp Leu Pro Phe Phe
226 165 170 175
228 Asp Leu Met Ser Ile Pro Gly Lys Leu Arg Ala Gly Phe Gly Pro Ile
229 180 185 190
231 Gly Leu Arg Pro Ser Pro Pro Gly His Glu Glu Ser Val Glu Gln Phe
232 195 200 205
234 Val Arg Arg Asn Leu Gly Gly Glu Val Phe Glu Arg Leu Ile Glu Pro
235 210 215 220
237 Phe Cys Ser Gly Val Tyr Val Gly Asp Pro Ser Lys Leu Ser Met Lys
238 225 230 235 240
240 Ala Ala Phe Gly Lys Val Trp Lys Leu Glu Glu Thr Gly Gly Ser Ile
241 245 250 255
243 Ile Gly Gly Thr Phe Lys Ala Ile Lys Glu Arg Ser Ser Thr Pro Lys
244 260 265 270
246 Ala Pro Arg Asp Pro Arg Leu Pro Lys Pro Lys Gly Gln Thr Val Gly
247 275 280 285
249 Ser Phe Arg Lys Gly Leu Arg Met Leu Pro Asp Ala Ile Ser Ala Arg
250 290 295 300
252 Leu Gly Ser Lys Leu Lys Leu Ser Trp Lys Leu Ser Ser Ile Thr Lys
253 305 310 315 320
255 Ser Glu Lys Gly Gly Tyr His Leu Thr Tyr Glu Thr Pro Glu Gly Val
256 325 330 335
258 Val Ser Leu Gln Ser Arg Ser Ile Val Met Thr Val Pro Ser Tyr Val
259 340 345 350
261 Ala Ser Asn Ile Leu Arg Pro Leu Ser Val Ala Ala Ala Asp Ala Leu
262 355 360 365
264 Ser Asn Phe Tyr Tyr Pro Pro Val Gly Ala Val Thr Ile Ser Tyr Pro
265 370 375 380
267 Gln Glu Ala Ile Arg Asp Glu Arg Leu Val Asp Gly Glu Leu Lys Gly
268 385 390 395 400
270 Phe Gly Gln Leu His Pro Arg Thr Gln Gly Val Glu Thr Leu Gly Thr
271 405 410 415
273 Ile Tyr Ser Ser Ser Leu Phe Pro Asn Arg Ala Pro Lys Gly Arg Val
274 420 425 430
276 Leu Leu Leu Asn Tyr Ile Gly Gly Ala Lys Asn Pro Glu Ile Leu Ser
277 435 440 445
279 Lys Thr Glu Ser Gln Leu Val Glu Val Val Asp Arg Asp Leu Arg Lys

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